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ABSTRACT

This guide was developed to provide school personnel with practical ways to help students with asthma participate fully in all school activities. It begins by noting the prevalence of asthma and stating that asthma is a leading cause of absenteeism among students. This is followed by a brief description of asthma as a chronic lung disease characterized by acute episodes or attack of breathing problems such as coughing, wheezing, chest tightness, and shortness of breath. A list of common "triggers" or stimuli that cause asthma episodes is given. Effective asthma management in the schools is described and an asthma management program from school is provided. Reproducible action sheets for school staff include sheets delineating the role of the principal, the school nurse or other health professional, the classroom teacher, the physical education instruction and coach, and the guidance counselor. The guide concludes with a set of resource information on asthma, including a list of early signs of an asthma episode, a sample asthma action plan, information on the use of a metered dose inhaler and a peak flow meter, and a list of resources available to schools to help manage asthma. (NB)

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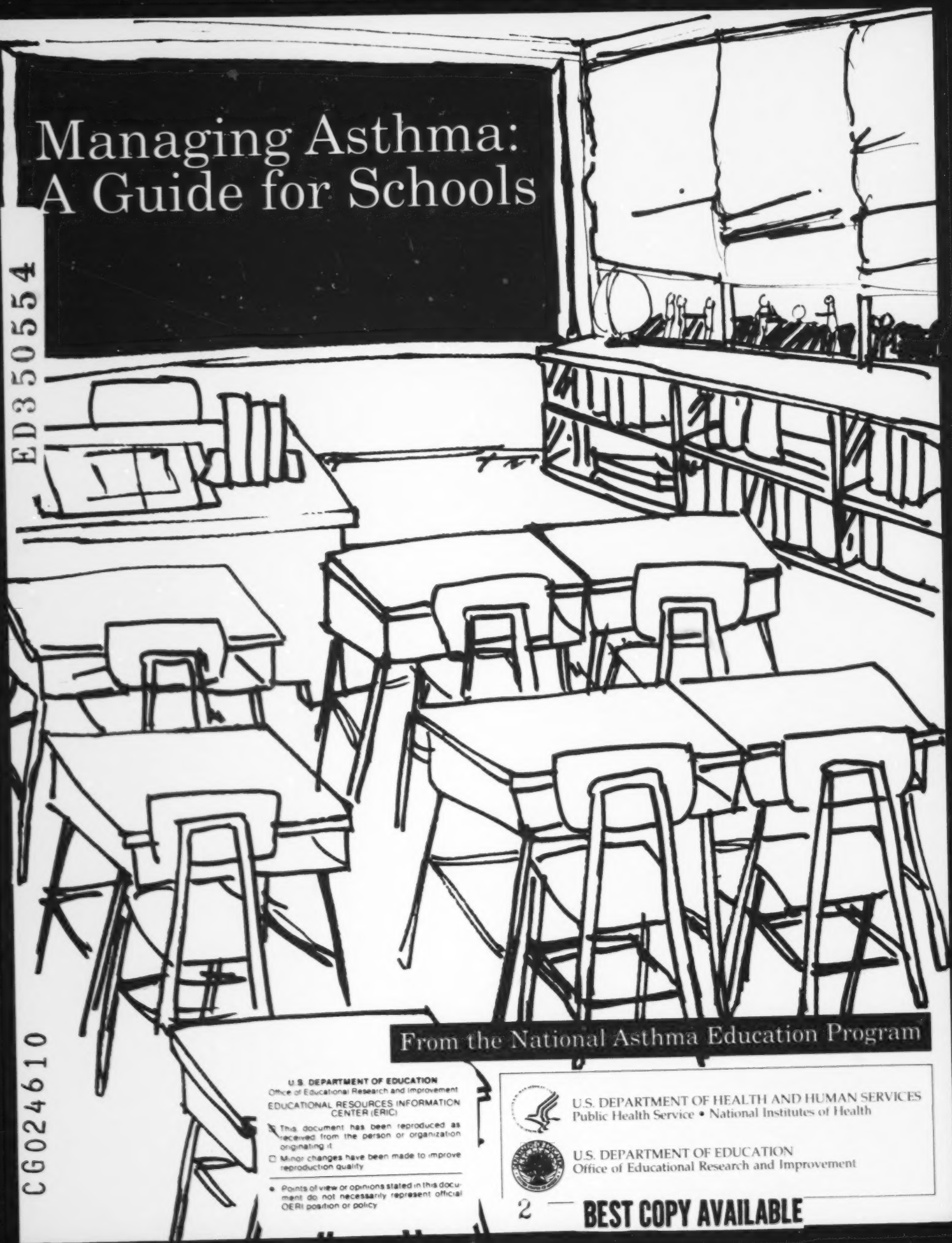
Managing Asthma: A Guide for Schools



From the National Asthma Education Program

ED350554

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Office of Educational Research and Improvement

National Heart, Lung, and Blood Institute

National Asthma Education Program

Foreword

This guide was developed as the first of a series of collaborative projects between the National Heart, Lung, and Blood Institute (NHLBI), National Asthma Education Program (NAEP), National Institutes of Health, U.S. Department of Health and Human Services, and the Fund for the Improvement and Reform of Schools and Teaching, Office of Educational Research and Improvement (OERI), U.S. Department of Education. These agencies are working together because of the serious and chronic nature of asthma. It affects over 1 in 20 children but, with proper treatment, can be controlled. This booklet is intended to provide school personnel with practical ways to help students with asthma participate fully in all school activities.

The NHLBI supports comprehensive school asthma education and has as a major objective the development and dissemination of asthma education materials. The focus is to encourage school personnel such as teachers, school nurses, physical education teachers, and coaches to recognize asthma as a disease requiring ongoing care. Giving proper treatment and education will improve the performance of students who suffer from asthma. Thus, the NAEP encourages developing a partnership among physicians, school personnel, patients, and families in managing and controlling asthma.

The OERI is particularly interested in school programs for asthma management because it relates directly to national education goals developed by the President and state governors. Two of the six goals include statements which apply to asthma management. The first states that "all children in America will start school ready to learn." Part of being "ready to learn" means being physically able to take advantage of learning opportunities. Students who are not well enough to attend school, or do not receive school support to control their illness, cannot learn effectively.

The second goal describes the need for "safe, disciplined, and drug-free schools" in America. Safety for asthmatic students is knowing that adults at home and at school can help them properly manage asthma episodes and emergencies. Safety is also knowing that school personnel understand the feelings that accompany asthma and the treatment side effects. Safety, like health, is a basic need that must be satisfied before learning can begin.

AMERICA 2000, the strategy for achieving these national education goals mentioned earlier, emphasizes looking "beyond...classrooms to our communities and families." One community that can contribute to better education is the medical community. Health care professionals can help inform school staff and parents about medical issues that may affect a student's ability to learn.

This particular booklet outlines how school personnel can help in asthma management. The specific roles and actions that various staff should perform are specified. We hope that schools will take advantage of the important material contained in this booklet. For further information please contact the National Asthma Education Program, 4733 Bethesda Avenue, Suite 530, Bethesda, Maryland 20814; (301) 951-3260.

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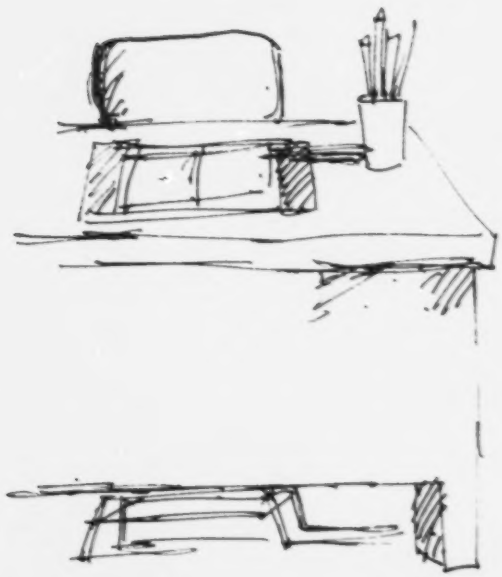


Asthma:
A Leading Cause of Absenteeism

Asthma is one of the leading causes of school absence for illness. Approximately 3 million children under the age of 18 have been diagnosed with asthma, and that number may be higher. School staff can play an important role in helping the student with asthma manage the disease at school.

Effective management of asthma at school can help:

- promote a supportive learning environment for students with asthma,
- reduce absences,
- reduce disruption in the classroom,
- provide the necessary support in the event of an emergency, and
- achieve full participation in physical activities.

This guide is designed for any member of the school staff, regardless of their medical background. The information in the guide will help you develop and maintain an asthma management program for your school. Included in the guide are:

- a brief definition of asthma,
- a list of common "triggers" or stimuli that cause asthma episodes,
- a description of effective asthma management in schools,
- a description of an asthma management program for schools,
- reproducible action sheets for school staff, and
- resource information on asthma including an asthma action plan to be used for each student with asthma.

Asthma Is a Chronic Lung Disease

Asthma is a chronic lung disease characterized by acute episodes or attacks of breathing problems such as coughing, wheezing, chest tightness, and shortness of breath. These symptoms are caused by airway swelling, blocked airways, and increased responsiveness of the airways to a variety of stimuli or "triggers." The triggers that cause an asthma episode vary with individuals, but there are common triggers.

Asthma Can Be Controlled With Effective Management

Asthma can be controlled with proper diagnosis and management. It cannot be cured. Traditionally asthma care has focused on treating acute episodes. New approaches emphasize preventing episodes by reducing the constant presence of inflammation in the lungs. With long-term therapy, people with asthma need not suffer from symptoms. Consequently when asthma is managed effectively, the student can enjoy unrestricted participation in all school activities.

Effective management of asthma will allow a student to maintain a normal activity level, prevent acute symptoms and episodes, and avoid side effects from medications.

This can be accomplished by:

- Recognizing the early warning signs of asthma. These may include shortness of breath, coughing, increased breathing rate, and wheezing.
- Avoiding or controlling triggers. Refer to the list below.
- Taking medication as directed. A person with asthma often needs two types of medications. One form is used to relax the airways The other is used to decrease the inflammation in the airways and prevent episodes from occurring.
- Monitoring asthma with a peak flow meter, if available. A peak flow meter measures how well air is moving through the lungs. When the airways are narrow, this measurement will be decreased.

Common Asthma Triggers

- ***allergens*** such as pollen, animal dander, dust mites, and molds
- ***irritants*** such as cold air, strong odors, weather changes, and cigarette smoke
- ***upper respiratory infections*** such as a cold or flu
- ***physical exercise***, especially in cold weather

Effective management of asthma requires a partnership among the student, parent(s) or guardian(s), the physician, and other adults who work with the child. The school team can play an important role in helping students manage their asthma by providing support through the development of an asthma management program.

Develop an Asthma Management Program in Your School

Developing an asthma management program shows that your school is responsive to the needs of students with asthma. Such a program will also ease the burden on school staff. By creating procedures that outline responsibilities, an asthma management program will alleviate any anxiety the staff might have about helping a student with asthma. A management program should contain:

- school policies and procedures for administering medications,
- specific actions for staff members to perform in the asthma management program,
- an action plan for asthma episodes.

This action plan should include management guidelines for each student with asthma. The plan should describe the student's medical information and specific steps in asthma management. The asthma action plan should contain:

- a list of medications the student receives, noting which ones need to be taken during school hours,
- a specific plan of action for school personnel in case of an acute episode, and
- emergency procedures and phone numbers.

This action plan should be signed by a parent and the physician and kept on file at school. Because every individual's asthma is different, the action plan must be specific to the student's needs. The sample asthma action plan included in this guide may be adapted to fit the needs of individual students and your school.

The following sections of this guide provide two sets of reproducibles for use by school staff in their asthma management efforts.

- Managing Asthma in the School—Actions for School Staff
- Resource Information on Asthma

Each staff member should always remember: the student's action plan should be referred to at the first sign of an acute episode of asthma.

Managing Asthma in the School: Actions for School Staff

- Principal
- School Nurse or Other Health Personnel
- Classroom Teacher
- Physical Education Instructor and Coach
- Guidance Counselor

Actions for the Principal

- Involve your staff in the asthma management program. A school asthma management program is a cooperative effort that involves the student, parents, teachers, school staff, and physicians. Many members of the school staff can play a role in maintaining your school's asthma management program, although the principal or the school nurse may be most instrumental in getting a program started. Take the steps listed below to help set up an asthma management program in your school.

- Develop a clear policy on taking medication during school hours. Work with parents, teachers, the school nurse (if available), and others to provide the most supportive policy that your school system allows so that the student can get the medication he/she needs.

- Designate one person on the school staff to be responsible for maintaining each student's asthma action plan.

- Provide opportunities for staff to learn about asthma and allergies by setting up inservice courses. You may get assistance from your school nurse, or a local hospital or medical society. Other sources of information are the American Lung Association, Asthma and Allergy Foundation of America, National Jewish Center for Immunology and Respiratory Medicine, and the Mothers of Asthmatics.

- Establish an asthma resource file of pamphlets, brochures, and other publications for school personnel to provide an opportunity for the staff to get additional information about asthma. Many of the organizations cited above offer materials for this purpose. Make general information available to students as well.

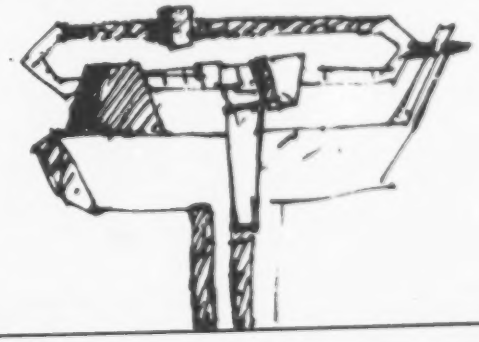
- Schedule any extensive building repairs or cleaning to avoid exposing students to fumes, dust, and other irritants. When possible, try to schedule painting and major repairs during long vacations or the summer months.

- Support and encourage communication with parents to improve school health services.

Actions for the School Nurse or Other Health Personnel

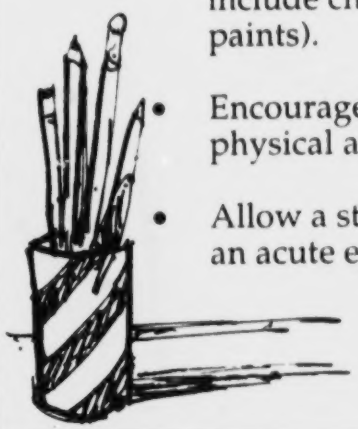
- Maintain the asthma action plan for every student with asthma. Include information on medications, dosages, triggers, and emergency procedures.
- Alert staff members about students with a history of asthma.
- Use the warning signs presented in the publication, *Managing Asthma: A Guide for Schools*, to help identify students with uncontrolled asthma. Provide this information to parents with the encouragement to see a physician.
- Assist with the administration of medication in accordance with school policy.
- Monitor response to treatment using a peak flow meter. (Refer to resource section on "Use of a Peak Flow Meter.")
- Communicate with parents about acute episodes, if any, and about the student's general progress in controlling asthma at school.
- Conduct inservices on asthma, and consult with staff to help develop appropriate school activities for students with asthma.
- Collaborate with the PTA to consider offering a family asthma education program in school. Consult organizations on the resource list in the publication, *Managing Asthma: A Guide for Schools*, for assistance.

If there is not a nurse at your school, these tasks should be assigned to an appropriate staff member.



Actions for the Classroom Teacher

- Know the early warning signs of an asthma episode.
- Have a copy of the asthma action plan in the classroom. Review it with the student and parents. Know what steps to take in case of an asthma episode.
- Develop a clear procedure with the student and parent for handling schoolwork missed due to asthma.
- Understand that a student with asthma may feel:
  drowsy or tired,
  different from the other kids,
  anxious about access to medication,
  embarrassed about the disruption to
  school activities that an asthma episode causes, and/or
  withdrawn.
- Help the student feel more comfortable by recognizing these feelings. Try to maintain confidentiality. Educate classmates about asthma so they will be more understanding.
- Know the possible side effects of asthma medications and how they may impact the student's performance in the classroom. Refer any problem to the school nurse and parent(s). Common side effects of medicine that warrant referral are nervousness, nausea, jitteriness, hyperactivity, and drowsiness.
- Reduce known allergens in the classroom to help students who have allergies. Common allergens found in classrooms include chalk dust, animals, and strong odors (perfumes, paints).
- Encourage the student with asthma to participate fully in physical activities.
- Allow a student to engage in quiet activity if recovery from an acute episode precludes full participation.



Actions for the Physical Education Instructor and Coach

- Encourage exercise and participation in sports for students with asthma. When asthma is under good control, students with the disease are able to play most sports. A number of Olympic medalists have asthma.

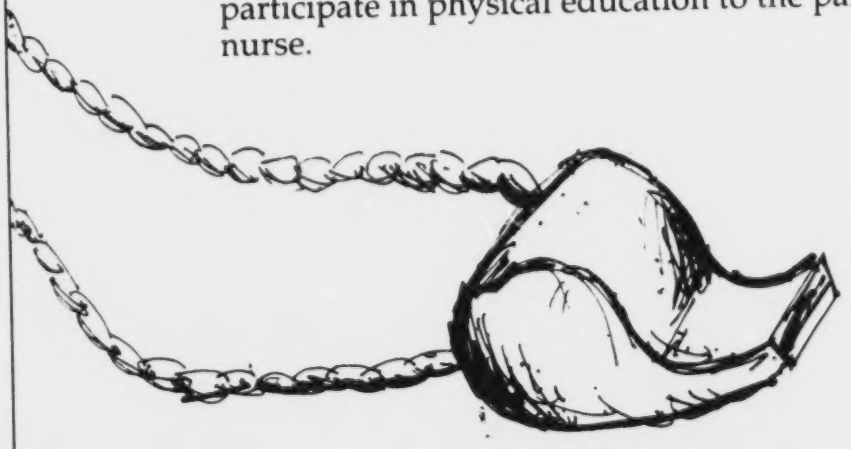
- Appreciate that exercise can cause acute episodes for many students with asthma. Exercise in cold dry air and activities that require extended running appear to trigger asthma more readily than other forms of exercise. However, medicines can be taken before exertion to help avoid an episode. This preventive medicine enables most students with exercise-induced asthma to participate in any sport they choose. Warmup and cooldown activities appropriate for any exercise will also help the student with asthma.

- Support the student's treatment plan if it requires premedication before exercise.

- Understand what to do if an asthma episode occurs during exercise. Have the child's asthma action plan available.

- Encourage students with asthma to participate actively in sports but also recognize and respect their limits. Permit less strenuous activities if a recent illness precludes full participation.

- Refer your questions about a student's ability to fully participate in physical education to the parents and school nurse.



Actions for the Guidance Counselor

- Help all school personnel understand that asthma is not an emotional or psychological disease—it is not "all in the child's head." Strong emotions such as laughing or crying can trigger an acute episode because this irritates and constricts the sensitive airways of a person with asthma.

- Recognize that learning to cope with asthma, as with any chronic illness, can be difficult. Teachers may notice low self-esteem, withdrawal from activities, discouragement over the steps needed to control asthma, or difficulty making up schoolwork. Special counseling with the student and/or parents may help the student handle problems more effectively.

Resource Information on Asthma

- Early Signs of an Asthma Episode
- Sample Asthma Action Plan
- Use of a Metered Dose Inhaler
- Use of a Peak Flow Meter
- Resources Available to Schools To Help Manage Asthma

Early Signs of an Asthma Episode

Students who have asthma often learn to identify their early warning signs—the physical changes that occur in the early stage of airway obstruction. These early warning signs usually happen long before more serious symptoms occur. Being aware of these early warning signs allows the student to take medication at a time when asthma is easiest to control. Teachers should encourage students to be aware of these early symptoms, and to take the proper action immediately.

Knowing the signs of a beginning episode will help you and other staff take appropriate measures to avoid a more serious medical emergency. **There should be no delay once a student has notified the teacher of a possible problem.**

A student may exhibit one or more of these signs during the initial phase of an asthma episode.

1. **Changes in breathing** may include:
   coughing,
   wheezing,
   breathing through the mouth,
   shortness of breath, and/or
   rapid breathing.

2. **Verbal Complaints.** Often a student who is familiar with asthma will know that an episode is about to happen. The student might tell the teacher that:
   the chest is tight,
   the chest hurts,
   he/she cannot catch a breath,
   the mouth is dry,
   the neck feels funny, and/or
   a more general "I don't feel well."

3. **Other signs may be:**
   an itchy chin or neck—some people may rub their chin or neck in response to this feeling, or
   "clipped" speech—the student may speak in very short, choppy sentences.

Sample Asthma Action Plan

Student Information

Name of Student: _____ D.O.B.: _____

Grade: _____ Homeroom Teacher or Class: _____

Physical Education Days and Times: _____

Emergency Information

Parent(s') or guardian(s') names: _____

Mother: Telephone (W): _____ **Father**: Telephone (W): _____

Telephone (H): _____ Telephone (H): _____

Physician's name: _____ Telephone: _____

In case of emergency, contact:

1. _____
2. _____
3. _____

Asthma Emergency Action

The following are possible signs of an asthma emergency:

- difficulty breathing, walking, or talking
- blue or gray discoloration of the lips or fingernails
- failure of medication to reduce worsening symptoms.

These signs indicate the need for emergency medical care. The steps that should be taken are:

- activate the emergency medical system in your area; **Phone:** _____
- call parent/guardian or physician.

Triggers: _____

_____

Personal best peak flow _____

Sample Asthma Action Plan (continued)

All Current Medications

Name of medication	Dosage	Time

Medications To Be Given at School (if any)

Name of medication	Dosage	Time

Steps for an Acute Asthma Episode

(to be completed by physician)

1. _____
2. _____
3. _____
4. _____

Parent's/guardian's signature _____

Physician's signature _____

Use of a Metered Dose Inhaler

A metered dose inhaler (MDI) is a device used to deliver asthma medication directly to the lungs. In order to ensure effective administration of the medicine, the following steps should be performed:

1. Remove the cap and hold inhaler upright.
2. Shake the inhaler.
3. Tilt the head back slightly and breathe out.
4. Position the inhaler in one of the following ways:
   A. Open mouth and hold inhaler 1 to 2 inches away
   B. Use spacer (recommended with young children)
   C. Put in the mouth

   (A is optimal, but C is acceptable if a student has trouble with either A or B)
5. Press down on inhaler to release medication as you start to breathe in slowly.
6. Breathe in *slowly* (3 to 5 seconds).
7. *Hold* breath for 10 seconds to allow medicine to reach deeply into lungs.
8. Repeat puffs as directed. Waiting 1 minute between puffs may permit the second puff to penetrate the lungs better.

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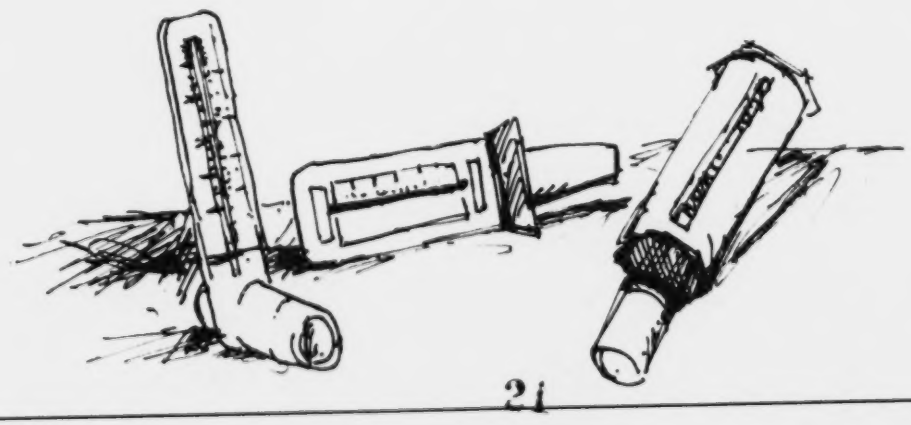
Use of a Peak Flow Meter

A peak flow meter is a useful tool for objectively measuring the severity of asthma. The value obtained is called a peak expiratory flow rate (PEFR). The PEFR indicates the degree of airway obstruction or narrowing. Specifically, the PEFR is the amount of air that can be forcefully exhaled in 1 second. Each individual has a normal rate based on height and age. However, many physicians prefer to use the person's "personal best" value. This number represents the highest rate obtained over a specified period of time.

This procedure can help in determining when medicine or a treatment change is necessary. In order to ensure accuracy of the results, however, the test must be performed using the correct technique. The following steps outline the procedure for this maneuver.

1. Place indicator at the base of the numbered scale.
2. Stand up.
3. Take a deep breath.
4. Place the meter in the mouth and close lips around the mouthpiece.
5. Blow out as hard and fast as possible.
6. Write down the achieved value.
7. Repeat the process two more times.
8. Record the highest of the three numbers achieved.



Resources Available to Schools To Help Manage Asthma

For more information contact:

The National Asthma Education Program Information Center 4733 Bethesda Ave. Suite 530 Bethesda, MD 20814-4820	(301) 951-3260

The following organizations can provide additional materials and additional information about asthma:

Asthma and Allergy Foundation of America National Headquarters 1717 Massachusetts Ave., NW Suite 305 Washington, DC 20036	1-800-727-8462
American Lung Association	Call your local Lung Association
National Jewish Center for Immunology and Respiratory Medicine 1400 Jackson St. Denver, CO 80206	1-800-222-5864
American Academy of Allergy and Immunology 611 East Well St. Milwaukee, WI 53202	1-800-822-2762
National Allergy and Asthma Network/ Mothers of Asthmatics 3554 Chain Bridge Road Suite 200 Fairfax, VA 22030	1-800-878-4403
American College of Allergy & Immunology 800 East Northwest Hwy. Suite 1080 Palatine, IL 60067	1-800-842-7777

Actions for the Principal

- Involve your staff in the asthma management program. A school asthma management program is a cooperative effort that involves the student, parents, teachers, school staff, and physicians. Many members of the school staff can play a role in maintaining your school's asthma management program, although the principal or the school nurse may be most instrumental in getting a program started. Take the steps listed below to help set up an asthma management program in your school.

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- Designate one person on the school staff to be responsible for maintaining each student's asthma action plan.

- Provide opportunities for staff to learn about asthma and allergies by setting up inservice courses. You may get assistance from your school nurse, or a local hospital or medical society. Other sources of information are the American Lung Association, Asthma and Allergy Foundation of America, National Jewish Center for Immunology and Respiratory Medicine, and the Mothers of Asthmatics.

- Establish an asthma resource file of pamphlets, brochures, and other publications for school personnel to provide an opportunity for the staff to get additional information about asthma. Many of the organizations cited above offer materials for this purpose. Make general information available to students as well.

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- Support and encourage communication with parents to improve school health services.

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Actions for the School Nurse or Other Health Personnel

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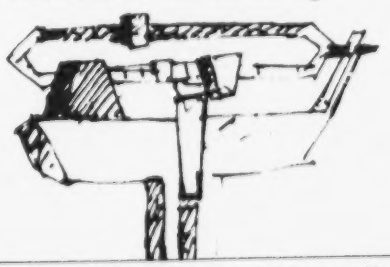

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- Develop a clear procedure with the student and parent for handling schoolwork missed due to asthma.
- Understand that a student with asthma may feel:
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  different from the other kids,
  anxious about access to medication,
  embarrassed about the disruption to school activities that an asthma episode causes, and/or withdrawn.
- Help the student feel more comfortable by recognizing these feelings. Try to maintain confidentiality. Educate classmates about asthma so they will be more understanding.
- Know the possible side effects of asthma medications and how they may impact the student's performance in the classroom. Refer any problem to the school nurse and parent(s). Common side effects of medicine that warrant referral are nervousness, nausea, jitteriness, hyperactivity, and drowsiness.
- Reduce known allergens in the classroom to help students who have allergies. Common allergens found in classrooms include chalk dust, animals, and strong odors (perfumes, paints).
- Encourage the student with asthma to participate fully in physical activities.
- Allow a student to engage in quiet activity if recovery from an acute episode precludes full participation.

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Actions for the Physical Education Instructor and Coach

- Encourage exercise and participation in sports for students with asthma. When asthma is under good control, students with the disease are able to play most sports. A number of Olympic medalists have asthma.

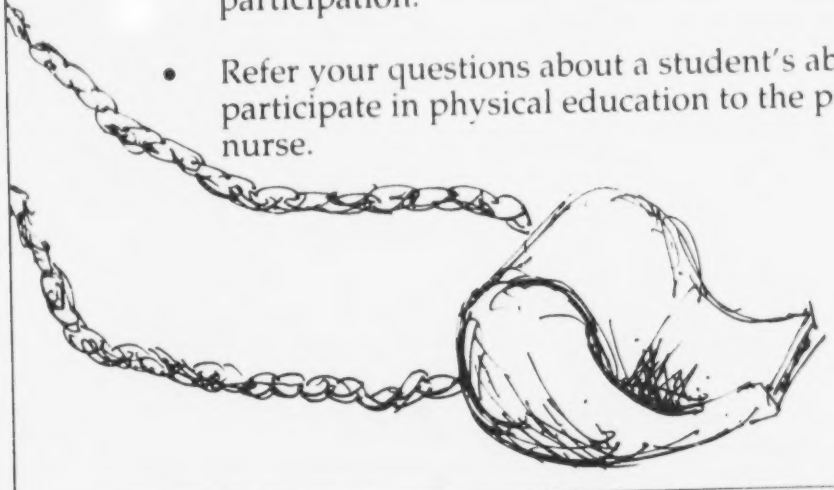
- Appreciate that exercise can cause acute episodes for many students with asthma. Exercise in cold dry air and activities that require extended running appear to trigger asthma more readily than other forms of exercise. However, medicines can be taken before exertion to help avoid an episode. This preventive medicine enables most students with exercise-induced asthma to participate in any sport they choose. Warmup and cooldown activities appropriate for any exercise will also help the student with asthma.

- Support the student's treatment plan if it requires premedication before exercise.

- Understand what to do if an asthma episode occurs during exercise. Have the child's asthma action plan available.

- Encourage students with asthma to participate actively in sports but also recognize and respect their limits. Permit less strenuous activities if a recent illness precludes full participation.

- Refer your questions about a student's ability to fully participate in physical education to the parents and school nurse.



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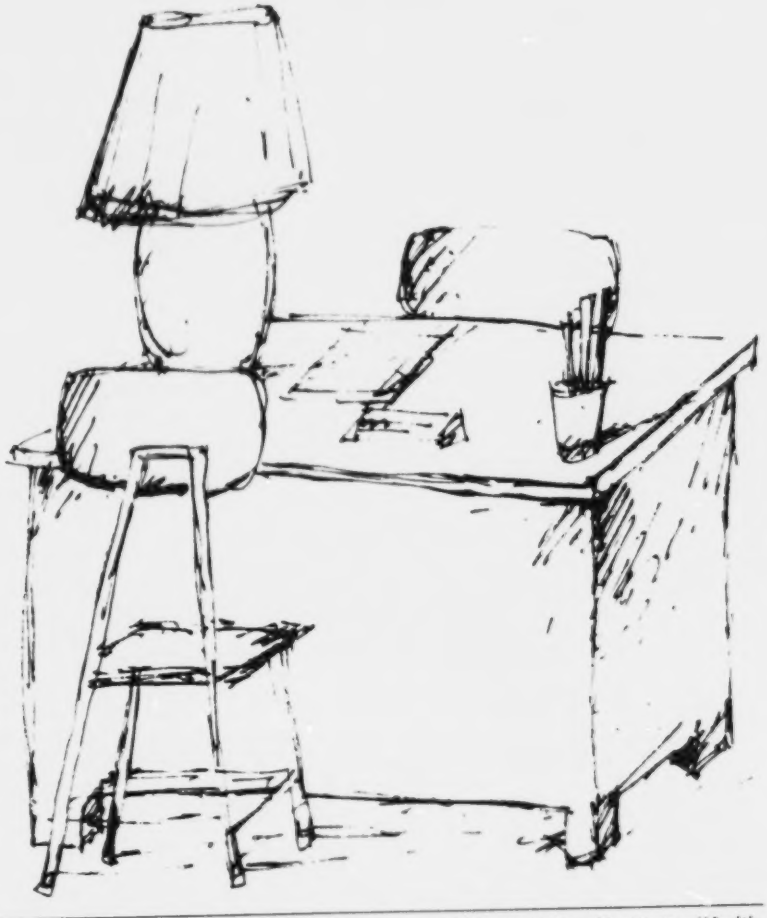
Actions for the Guidance Counselor

- Help all school personnel understand that asthma is not an emotional or psychological disease—it is not "all in the child's head." Strong emotions such as laughing or crying can trigger an acute episode because this irritates and constricts the sensitive airways of a person with asthma.

- Recognize that learning to cope with asthma, as with any chronic illness, can be difficult. Teachers may notice low self-esteem, withdrawal from activities, discouragement over the steps needed to control asthma, or difficulty making up schoolwork. Special counseling with the student and/or parents may help the student handle problems more effectively.



Source: Managing Asthma: A Guide for Schools. *National Heart, Lung, and Blood Institute (NHLBI), National Institutes of Health, U.S. Department of Health and Human Services, and the Fund for the Improvement and Reform of Schools and Teaching, Office of Educational Research and Improvement (OERI), U.S. Department of Education. September 1991. NIH Publication No. 91-2650.*

Early Signs of an Asthma Episode

Students who have asthma often learn to identify their early warning signs—the physical changes that occur in the early stage of airway obstruction. These early warning signs usually happen long before more serious symptoms occur. Being aware of these early warning signs allows the student to take medication at a time when asthma is easiest to control. Teachers should encourage students to be aware of these early symptoms, and to take the proper action immediately.

Knowing the signs of a beginning episode will help you and other staff take appropriate measures to avoid a more serious medical emergency. **There should be no delay once a student has notified the teacher of a possible problem.**

A student may exhibit one or more of these signs during the initial phase of an asthma episode.

1. **Changes in breathing** may include:
   coughing,
   wheezing,
   breathing through the mouth,
   shortness of breath, and/or
   rapid breathing.

2. **Verbal Complaints.** Often a student who is familiar with asthma will know that an episode is about to happen. The student might tell the teacher that:
   the chest is tight,
   the chest hurts,
   he/she cannot catch a breath,
   the mouth is dry,
   the neck feels funny, and/or
   a more general "I don't feel well."

3. **Other signs may be:**
   an itchy chin or neck—some people may rub their chin or neck in response to this feeling, or
   "clipped" speech—the student may speak in very short, choppy sentences.

Source: Managing Asthma: A Guide for Schools. *National Heart, Lung, and Blood Institute (NHLBI), National Institutes of Health, U.S. Department of Health and Human Services, and the Fund for the Improvement and Reform of Schools and Teaching, Office of Educational Research and Improvement (OERI), U.S. Department of Education. September 1991. NIH Publication No. 91-2e50.*

Sample Asthma Action Plan

Student Information

Name of Student: _____ D.O.B.: _____

Grade: _____ Homeroom Teacher or Class: _____

Physical Education Days and Times: _____

Emergency Information

Parent(s') or guardian(s') names: _____

Mother: Telephone (W): _____ **Father**: Telephone (W): _____

Telephone (H): _____ Telephone (H): _____

Physician's name: _____ Telephone: _____

In case of emergency, contact:

1. _____
2. _____
3. _____

Asthma Emergency Action

The following are possible signs of an asthma emergency:

- difficulty breathing, walking, or talking
- blue or gray discoloration of the lips or fingernails
- failure of medication to reduce worsening symptoms.

These signs indicate the need for emergency medical care. The steps that should be taken are:

- activate the emergency medical system in your area; **Phone:** _____
- call parent/guardian or physician.

Triggers: _____

_____

Personal best peak flow _____

Source: **Managing Asthma: A Guide for Schools.** *National Heart, Lung, and Blood Institute (NHLBI), National Institutes of Health, U.S. Department of Health and Human Services, and the Fund for the Improvement and Reform of Schools and Teaching, Office of Educational Research and Improvement (OERI), U.S. Department of Education. September 1991. NIH Publication No. 91-2650.*

Sample Asthma Action Plan (continued)

All Current Medications

Name of medication	Dosage	Time

Medications To Be Given at School (if any)

Name of medication	Dosage	Time

Steps for an Acute Asthma Episode

(to be completed by physician)

1. _____
2. _____
3. _____
4. _____

Parent's/guardian's signature _____

Physician's signature _____

Source: **Managing Asthma: A Guide for Schools.** *National Heart, Lung, and Blood Institute (NHLBI), National Institutes of Health, U.S. Department of Health and Human Services, and the Fund for the Improvement and Reform of Schools and Teaching, Office of Educational Research and Improvement (OERI), U.S. Department of Education. September 1991. NIH Publication No. 91-2650.*

Use of a Metered Dose Inhaler

A metered dose inhaler (MDI) is a device used to deliver asthma medication directly to the lungs. In order to ensure effective administration of the medicine, the following steps should be performed:

1. Remove the cap and hold inhaler upright.
2. Shake the inhaler.
3. Tilt the head back slightly and breathe out.
4. Position the inhaler in one of the following ways:

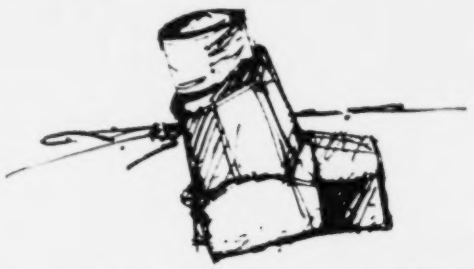
   A. Open mouth and hold inhaler 1 to 2 inches away

   B. Use spacer (recommended with young children)

   C. Put in the mouth

   (A is optimal, but C is acceptable if a student has trouble with either A or B)

5. Press down on inhaler to release medication as you start to breathe in slowly.
6. Breathe in *slowly* (3 to 5 seconds).
7. *Hold* breath for 10 seconds to allow medicine to reach deeply into lungs.
8. Repeat puffs as directed. Waiting 1 minute between puffs may permit the second puff to penetrate the lungs better.



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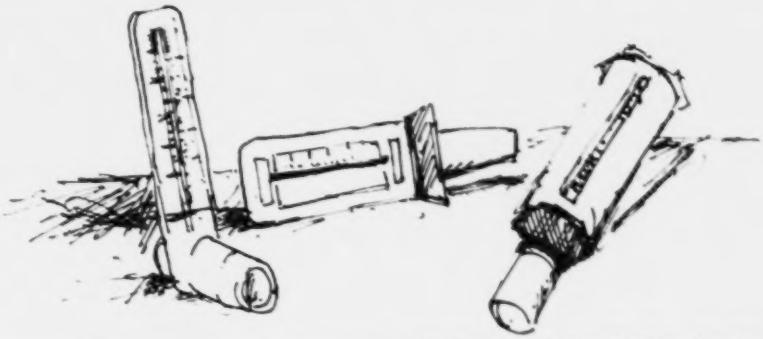
Use of a Peak Flow Meter

A peak flow meter is a useful tool for objectively measuring the severity of asthma. The value obtained is called a peak expiratory flow rate (PEFR). The PEFR indicates the degree of airway obstruction or narrowing. Specifically, the PEFR is the amount of air that can be forcefully exhaled in 1 second. Each individual has a normal rate based on height and age. However, many physicians prefer to use the person's "personal best" value. This number represents the highest rate obtained over a specified period of time.

This procedure can help in determining when medicine or a treatment change is necessary. In order to ensure accuracy of the results, however, the test must be performed using the correct technique. The following steps outline the procedure for this maneuver.

1. Place indicator at the base of the numbered scale.
2. Stand up.
3. Take a deep breath.
4. Place the meter in the mouth and close lips around the mouthpiece.
5. Blow out as hard and fast as possible.
6. Write down the achieved value.
7. Repeat the process two more times.
8. Record the highest of the three numbers achieved.



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Resources Available to Schools To Help Manage Asthma

For more information contact:

The National Asthma Education Program Information Center 4733 Bethesda Ave. Suite 530 Bethesda, MD 20814-4820	(301) 951-3260

The following organizations can provide additional materials and additional information about asthma:

Asthma and Allergy Foundation of America National Headquarters 1717 Massachusetts Ave., NW Suite 305 Washington, DC 20036	1-800-727-8462
American Lung Association	Call your local Lung Association
National Jewish Center for Immunology and Respiratory Medicine 1400 Jackson St. Denver, CO 80206	1-800-222-5864
American Academy of Allergy and Immunology 611 East Well St. Milwaukee, WI 53202	1-800-822-2762
National Allergy and Asthma Network/ Mothers of Asthmatics 3554 Chain Bridge Road Suite 200 Fairfax, VA 22030	1-800-878-4403
American College of Allergy & Immunology 800 East Northwest Hwy. Suite 1080 Palatine, IL 60067	1-800-842-7777

Source: **Managing Asthma: A Guide for Schools.** *National Heart, Lung, and Blood Institute (NHLBI), National Institutes of Health, U.S. Department of Health and Human Services, and the Fund for the Improvement and Reform of Schools and Teaching, Office of Educational Research and Improvement (OERI), U.S. Department of Education. September 1991. NIH Publication No. 91-2650.*

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